

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
)
Masahiro KIYOTOSHI) Group Art Unit: **Not Yet Assigned**
)
Serial No.: **Not Yet Assigned**) Examiner: **Not Yet Assigned**
)
Filed: **September 3, 2003**)
)
For: **SEMICONDUCTOR DEVICE AND**)
METHOD OF MANUFACTURING SAME)

MAIL STOP PATENT APPLICATION
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97(b)

Pursuant to 37 C.F.R. §§1.56 and 1.97(b), applicant brings to the Examiner's attention the documents listed on attached Form PTO-1449. Copies of the listed documents are attached. Applicant respectfully requests that the Examiner consider the documents listed on attached Form PTO-1449 and indicate that they were considered by making an appropriate notation on this form. This Information Disclosure Statement is being filed with the above-referenced application.

The following is a concise statement of relevance of the non-English language documents:

1. Japanese Patent Publication No. 2001-274340 - discloses MIM capacitor structure that prevents electrical field concentration. MIM capacitor with partially thin dielectric and top electrode formed on the dielectric film except on the above mentioned

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partially thin region to avoid electric field concentration at capacitor top electrode edge and to suppress leakage current by remaining third dielectric over bottom electrode.

2. Japanese Patent Publication No. 2000-208720 – Discloses MIM capacitors with TiN electrodes and diffusion barrier layer and high-K dielectric layer. The high-K dielectric layer is Ta₂O₅ or perovskite crystalline material. The barrier layer is one of the following materials; metal carbide, metal nitride, metal boride, metal carbon nitride, SiC, TiC, TaC, ZrC, MoC, WC, CoC, AlN, WN, MoN, ZrN, VN, TiB₂, ZrB₂, SiC. The above mentioned layer thicknesses are in the following ranges; 10~50Å, 10~200Å, 50~1000Å, 200~300Å. The relevance of this document is also discussed at page 4 of the specification of the present application.

3. Japanese Patent Publication No. 2000-183289 – discloses control method of dielectric properties of capacitors by making capacitor dielectric of stacked film with different K- value and tuning thicknesses of stacked dielectrics. At least one of the above mentioned dielectric films is selected from the following materials; CeO₂, Sm₂O₃, Dy₂O₃, Y₂O₃, TiO₂, Al₂O₃, MgO, SiO₂, ZrO₂, Ta₂O₅. The relevance of this document is also discussed at page 4 of the specification of the present application.

Also, an English-language abstract of each document enclosed.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the listed documents are material or constitute "prior art." If the Examiner applies any of the documents as prior art against any claim in the application and applicant determines that the cited documents do not constitute "prior art" under United States law, applicant

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reserves the right to present to the office the relevant facts and law regarding the appropriate status of such documents. Applicant further reserves the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

If there is any fee due in connection with the filing of this Statement, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: September 3, 2003

By: 

Richard V. Burgujian
Reg. No. 31,744

Enclosures
RVB/FPD/sci

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INFORMATION DISCLOSURE CITATION

Atty. Docket No.	04329.3132	Serial No.	Not Yet Assigned
Applicant	Masahiro KIYOTOSHI		
Filing Date	September 3, 2003	Group:	Not Yet Assigned

U.S. PATENT DOCUMENTS							
Examiner Initial*		Document Number	Issue Date	Name	Class	Sub Class	Filing Date If Appropriate

FOREIGN PATENT DOCUMENTS							
		Document Number	Publication Date	Country	Class	Sub Class	Translation Yes or No
		2001-274340	10/05/01	JAPAN			ABSTRACT
		2000-208720	07/28/00	JAPAN			ABSTRACT
		2000-183289	06/30/00	JAPAN			ABSTRACT

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)	

Examiner	Date Considered
*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	
Form PTO 1449	Patent and Trademark Office - U.S. Department of Commerce